

“stones are only swallowed by frugivorous birds, which require them to triturate their food, and are never found in the gizzards of the Raptores.” Hence it was argued, that the Dodo, which is known to have had stones in its stomach, could have no affinity to Raptorial birds. Dr. G. Dickie of Aberdeen has however called my attention to a passage in Sir J. C. Ross’s Antarctic Expedition, which shows that the above generalization, though undoubtedly true in general, admits, like all rules, of an exception. It is there mentioned (vol. ii. p. 159) that stones were usually found in the stomachs of the *Aptenodytes Forsteri*, to the amount of two to twenty lbs. weight. This is certainly a remarkable fact in the case of a piscivorous bird, and indicates some peculiarity in its habits which it would be desirable to clear up. Do any of the fucivorous Fish swallow pebbles to help digestion, and can the Penguin have thus acquired these foreign matters at second hand? But whatever be the cause of this habit in the Penguin, it does not affect the argument as to the remoteness of the Dodo from the Raptorial birds.

XXXII.—*Contributions to the Botany of South America.*

By JOHN MIERS, Esq., F.R.S., F.L.S.

[Continued from p. 146.]

BRACHISTUS.

A PARTICULAR group of plants has been before alluded to under this name (*ante*, p. 144), most of which have been referred to *Witheringia* by Prof. Kunth, and from which genus I have shown that they differ by having a campanular calyx generally with an almost entire margin, which does not enlarge with the fruit, by a much smaller berry and other characters. They are also distinct from *Acnistus* by the calyx being generally entire on the margin, rarely 5-toothed, and not having the five strong prominent nervures which give to the calyx of the latter genus the appearance of an almost pentangular tube: they differ also in the much shorter tube of the corolla, a more rotate border, more dilated stamens arising from a triangular expansion at the base, as in *Hebecladus* and *Saracha*; their flowers are considerably less in size, and they have smaller berries, which exhibit a very thin membranaceous dissepiment, not thickened in the middle by the confluence of the placentæ, as in *Witheringia*, *Acnistus*, *Iochroma*, *Saracha*, &c.; the placentæ on the contrary, originating from a central line in the middle of the dissepiment, are thin and slender, projecting for a short distance at right angles into the cavity of the cell, and then become furcated, continuing mem-

branaceous, with numerous seeds attached on each side. The ovarium is also surrounded at its base by a distinct annular disc, and is not seated simply upon a fleshy torus as in *Acnistus*. These plants appear to me closely allied to the *Physalis arborescens*, Willd, which, on account of its arborescent habit and its different form of flower, I propose to separate from that genus and attach to this group. They may thus be made to constitute a distinct genus under the name of *Brachistus*, from βράχιστος, *brevissimus*, on account of the shortness of the tube of their corolla. As *Iochroma* (which I have made to include *Chanesthes*) differs from *Acnistus* principally in the length of the tube of its corolla, so *Brachistus* on the other hand is not less distinct from that genus on account of the extreme shortness of the tube of the corolla, and its deeply cleft rotate border. This genus will first include all the species of *Witheringia* of Prof. Kunth (of which I will give below amended characters) with the exception of *W. riparia*, which from its infundibuliform corolla is evidently an *Acnistus*, and *W. angustifolia*, which from its racemose blue flowers and other characters evidently does not belong to this genus, appertaining more probably to the same group as *Solanum montanum*. For the same reason are excluded the *W. crassifolia*, Dun., and *W. pendula*, R. and Sch. The *W. salicifolia*, Hook., is a *Capraria* according to Mr. Bentham, although it offers regular pentandrous flowers: it evidently belongs to the genus *Xuaresia* of R. and P.: the six herbaceous species of *Witheringia* of Dunal and Sprengel enumerated by Dr. Walpers (Repert. iii. pp. 31, 32), as I have before remarked, appear to me to belong to *Solanum*. The following I consider to be its generic characters:

BRACHISTUS (gen. nov.).—*Calyx* parvus, urceolatus, margine integro, vel rarius 4–5-dentato, persistens et non augescens. *Corolla* subrotata, tubo brevi, limbo 4–5-partito, lobis oblongis acutis, æstivatione valvata. *Stamina* 4–5, erecta; *filamenta* imo subdilatata, paulo supra basin corollæ adnata; *antheræ* oblongæ, submucronulatæ, 2-lobæ, lobis arete adnatis margine exteriore dehiscentibus. *Ovarium* ovatum, disco annulari imo cinctum, 2-loculare, dissepimento tenui utrinque in placentam membranaceam bifidam ovuligeram producto, ovulis plurimis. *Stylus* simplex, longitudine staminum. *Stigma* clavatum, sub-2-lobum. *Bacca* parva, globosa, calyce parvulo suffulta, 2-locularis. *Semina* compressa, in pulpo aquoso nidulantia, sublenticularia, *testa* aspero-scröbiculata; cætera ignota.—Arbores vel frutices *Americæ Æquinocctialis*: folia *alterna vel sæpius gemina, altero multo minori et heteromorpha, subintegra vel angulato-dentata*; flores *axillares, fasciculato-congesti, perpauci, vel rarius solitarii, pedicellis 1-floris, gracilibus, erectis, demum cernuis*.

1. *Brachistus stramonifolius*. *Witheringia stramonifolia*, *H. B. K. Nov. Gen.* iii. 13;—arboreus, ramulis angulatis, pubescentibus; foliis ovatis, acuminatis, inæqualiter cordatis et dentato-angulatis, hirtellis, geminis, altero dimidio brevioribus; floribus fasciculato-congestis, hirtellis, pedunculis nutantibus, 5-meris, staminibus margine pilosis, inclusis; bacca pisiformi, calycis persistentis duplo diametro.—Mexico.

The leaves are said to be 4–5 inches long, 2–3 inches broad, on a petiole 1–1½ inch: the flowers (fifteen to twenty) are aggregated in each extra-axillary fascicle, the peduncles varying from 6 to 20 lines in length; the corolla, the size of that of *Capsicum frutescens*, has an expanded 5-partite border, the mouth of the short tube being pilose, the filaments are hairy on the margins. The berries are red, globular, 3 lines in diameter, and are supported by their small persistent calyx on slender deflexed peduncles.

2. *Brachistus macrophyllus*. *Witheringia macrophylla*, *H. B. K. loc. cit.* 14;—fruticosus, ramulis subangulatis, tenuissime puberulis; foliis ovato-ellipticis, subacuminatis, subrepandis, glabris, superioribus geminis, altero minore; floribus plurimis, fasciculato-congestis, petiolo dimidio brevioribus, 4-meris, glabris, pedunculis filiformibus cernuis; corollæ tubo brevi, limbo 4-partito, patente, filamentis margine villosis; bacca minima, calyce parvulo suffulta.—Nova Granada.

The leaves are stated to be 8 inches long and about 4 inches broad, somewhat smooth, but slightly woolly on the primary nervures, and supported on a petiole 14–15 lines long, which is slender, caniculate and pubescent. The flowers are numerous in each fascicle upon slender, smooth peduncles 4–5 lines long. The calyx is small, almost entire or obsoletely 4-toothed, and quite smooth. The corolla, not larger than that of *Solanum nigrum*, is of a greenish hue, with a very short tube, a rotate border with four pointed lobes, the included filaments being very short, flattened and ciliate on the margins; the anther lobes are adnate, lanceolate, pointed, erect, and bursting on the margins. The ovarium is small, rounded, smooth, and seated on a glandular disc. The berry is red, not larger than a peppercorn, and supported upon its small calyx.

3. *Brachistus ciliatus*. *Witheringia ciliata*, *H. B. K. loc. cit.* 15.—fruticosus, ramis teretibus, glabris; foliis oblongis, acutis, basi angustatis, integerrimis, ciliatis, geminis, altero duplo minore; floribus 5-meris, parvis, paucis (1–2), extra-axillaribus, pedunculis capillaceis pubescentibus; calyce urceolato obsolete dentato, dentibus linearibus pubescente; corolla glabra, tubo brevi, limbo angulato sub-5-lobo patente, lobis acutis; bacca



*globosa*, calyce parvulo suffulta.—Nova Granada, in *Andibus excelsis*.

This plant bears very much the appearance of *Solanum phillyreoides*, Dun. The leaves are smooth, thin and membranaceous, ciliate on the margins,  $1\frac{1}{2}$  inch or more in length, 7 lines broad, on a pubescent petiole 4–5 lines long. The flowers, solitary or binate, are about the size of those of the last species, the very slender peduncles measuring 8–9 lines: the pubescent calyx is almost entire on the margin, with five nearly obsolete erect teeth, the filaments are short, quite smooth and dilated below, the anthers oblong, obtuse, erect, bursting on the margins.

4. *Brachistus mollis*. *Witheringia mollis*, *H. B. K. loc. cit.* 15.—*fruticosus*, ramulis teretibus, cano-tomentosis; foliis ovatis utrinque acuminatis, integerrimis, supra pubescentibus, subtus molliter cano-tomentosis, geminis, altero multo minore et difformi; floribus 5-meris, extra-axillaribus (2–3–4), pedunculis filiformibus, elongatis, cernuis; corollæ tubo brevi, limbo angulato sub-5-lobo, laciniis acutis, staminibus glabris inclusis; bacca minima, calyce parvulo suffulta.—Caxamarca, Peruvæ.

The leaves of this species are from  $1\frac{1}{2}$  to 2 inches long, and 9 to 12 lines broad, on a tomentose petiole 3 lines long. The peduncles, from 9 to 11 lines in length, are slender, hairy, dependent, but erect in fruit; the flowers are the size of those of the two former species; the calyx is urceolate, incano-tomentose, with five short linear teeth; the corolla is hairy outside, has a plicate and a somewhat pentangular limb with acute angles; the stamens, five or six, are short, smooth and erect; the berry, not larger than a peppercorn, is supported on its very small persistent calyx.

5. *Brachistus rhomboideus*. *Witheringia rhomboidea*, *H. B. K. loc. cit.* 15.—*fruticosus*, ramis teretibus, tomentosis; foliis ovatis, acutiusculis, basi rotundatis et inæqualibus, integerrimis, supra molliter pubescentibus, subtus cano-tomentosis, geminis, altero minore; floribus paucis (4–6), extra-axillaribus, fasciculatis, pedunculis filiformibus petiolo longioribus; corolla rotata, limbo 5-fido, laciniis acutis, apice hirtellis.—Nova Granada (Quindiu).

The branches of this species are said to be somewhat scandent; the leaves are scarcely 1 inch long,  $\frac{3}{4}$  inch broad, upon cano-tomentose petioles 2 to 5 lines in length: the peduncles are 4 or 5 lines long, cernuous in flower, erect and 7 to 8 lines long in fruit. The flowers are the size of those of the three foregoing species; the calyx, cano-tomentose, is urceolate, with a nearly entire margin, and five short linear distant teeth: the corolla is

glabrous, with a rotate 5-fid border, the segments being oblong, acute and hairy at the apex; the filaments are subulate, short and smooth.

6. *Brachistus dumetorum*. *Witheringia dumetorum*, *H. B. K. loc. cit.* 16.—fruticosus, ramulis subangulatis, junioribus tomentosis; foliis ovatis, subacuminatis, basi cuneatis, supra hirtopilosis, subtus hirtotomentosis et canescentibus, superioribus geminis, altero minore; floribus geminis aut ternis, extra-axillaribus, pedunculis filiformibus, tomentosis, petiolo multo longioribus; corolla rotata, limbo 5-fido, laciniis brevibus, acutis, apice hirtis; staminibus inclusis, glabris.—Nova Granada.

The leaves have a somewhat obtusely pointed acuminate apex, and are gradually contracted at base upon a short and caniculate tomentose petiole of 2 lines in length; they are from 12 to 16 lines long and 6 to 8 lines broad, somewhat coriaceous, with parallel nervures, which with the midrib are prominent beneath. The peduncles are 3 to 5 lines long, filiform and tomentose; the flowers are the size of those of the preceding species, the calyx of which it also resembles in form; the corolla is rotate, smooth and plicated; the filaments are very short, subulate and smooth.

7. *Brachistus riparius*. *Witheringia riparia*, *H. B. K. loc. cit.* 16.—fruticosus, ramulis angulatis, hispido-pilosis; foliis suboblique obovato-oblongis, acuminatis, basi acutis, supra glabris et læte viridibus, subtus in rachin pilosis, geminis, altero multo minore; floribus plurimis, fasciculatis, congestis, extra-axillaribus, petiolum subæquantibus; corollæ tubo calyce duplo longiore, infundibuliformi, limbo 5-partito; bacca spherica.—Nova Granada (Andibus Quindiuensibus, alt. 6300 ped.).

This species, from the greater length of its corolla, might be referred to *Acnistus*, did not the habit of the plant show it to be congeneric with the above-mentioned species described by Prof. Kunth. The larger of the geminate leaves are from 8 to 10 inches long,  $2\frac{1}{2}$  to  $3\frac{1}{2}$  inches broad, upon petioles 5 to 8 lines long, caniculate and hispid; the smaller leaves in each pair are only  $1\frac{1}{2}$  to 3 inches long, upon a much shorter petiole, and they are elliptic or ovate-elliptic, and acute at both ends. The flowers are fasciculated upon distinct peduncles, and are about the size of those of *Lycium barbarum*. The calyx is urceolate, obsoletely 5-toothed, thin and smooth; the corolla is of a greenish white colour, smooth, the border divided into five equal divisions; the filaments are pilose at base, the anthers oblong, bursting longitudinally; the style is smooth and longer than the stamens.

8. *Brachistus hebephyllus* (n. sp.) ;—fruticosus, ramulis teretibus, elliptico-lanceolatis, attenuato-acuminatis, basi subcuneatis, integris, utrinque molliter incano-pubescentibus ; floribus plurimis, parvulis, 4-meris, axillaribus, fasciculatis, pedunculis filiformibus, petiolo subæqualibus, pilosis ; calyce piloso, urceolato, margine integro, ciliato ; corolla rotata, laciniis 4, oblongis, acutis, margine ciliatis, tubo brevi, intus pilosulo, staminibus brevibus, erectis : ovario ovato, disco annulari insito : stylo staminibus superante, subincurvo ; stigmatе clavato ; bacca parva, calyce minimo suffulta.—Nova Granada, v. s. in herb. *Hook.* (Los Tapios, Quindiu, *Goudot*, sub nomine “*Witheringia mollis*, H. B. K.”)

This species, although approaching the *Witheringia mollis*, H. B. K., is certainly distinct from it in the form and size of its leaves, and its much smaller flowers, which are 4-merous : it has also an entire calyx. The leaves are 3 to  $3\frac{3}{4}$  inches long, and about 1 or  $1\frac{1}{4}$  inch broad, upon a petiole from 5 to 9 lines in length ; the flowers, from 6 to 10 or more, are crowded in each axil, the pedicels being 5 lines in flower and 7 lines in fruit, they are pubescent and erect ; the corolla has a short tube with a 4-fid expanded border ; the filaments are gradually dilated to the base, smooth and somewhat pilose at the point of their insertion in the middle of the short tube, which is there pubescent ; the anthers are ovate, cordate, acute, adnate, and terminated by a sharp point ; the style is long, slender and exserted, somewhat incurved, with a small clavate stigma ; the ovarium is ovate, and surrounded at the base by an annular fleshy ring ; the berry is about the size of a peppercorn, supported on its smaller persistent withered calyx ; the dissepiment and bifurcate placentæ are membranaceous : the seeds were too immature to determine the form of the embryo\*.

9. *Brachistus oblongifolius* (n. sp.) ;—fruticosus, ramulis teneris, teretibus, glabris ; foliis oblongis, utrinque acuminatis, omnino glabris, breviter petiolatis, inferioribus subcoriaceis, rugosovenosis, superioribus planiusculis, submembranaceis, geminis, altero tertio vel quarto minore, rhomboideo-ovato, breviter petiolatis ; floribus pentameris paucis, fasciculatis (2–4), pedunculis subcernuis, petiolo æquilongis ; calyce urceolato, brevissime 5-dentato, glabro ; corolla tubulosa, breviter infundibuliformi, limbo 5-lobo expanso, laciniis acutis, staminibus vix inclusis, filamentis filiformibus, medio tubi insertis, tubo hinc pubescente, aliter intus glabro.—Nova Granada, v. s. in herb. *Hook.* (Pantano del Moral, Ibague, *Goudot*.)

\* A figure of this species with generic details will be given in Plate 36 of the ‘Illustr. South Amer. Plants.’



The larger leaves are 5 inches long and 2 inches broad, on a petiole of 4 lines; the smaller leaves measure  $2\frac{1}{2}$  inches long and  $1\frac{1}{2}$  inch broad, on a petiole of 3 lines; the peduncles are from 4 to 6 lines long; the calyx urceolate, 1 line long; the tube of the corolla 3 lines, its segments 2 lines long\*.

10. *Brachistus dimorphus* (n. sp.) ;—fruticosus, ramulis teretibus, glaberrimis; foliis elongato-lanceolatis, apice acuminatissimis, basi oblique in petiolum attenuatis, adultis utrinque glabris, supra ad rachin scabrido-pilosis, margine subciliatis, junioribus sparse pilosis, geminis, difformibus, altero multo minori, rotundato-ovato, sessili, basi inæquali, supra glabro, subtus pallide fulvescente; floribus pentameris binis, extra-axillaribus, cernuis, petiolo brevioribus; calyce urceolato, fere integro, pubescente; corollæ tubo brevissimo, limbo 5-partito, expanso, lobis acutis; filamentis subulatis, compressis, glabris; antheris oblongis; stylo exserto, subincurvo; stigmatibus clavato, sub-2-lobo.—Nova Granada, v. s. in herb. Hook. (Los Tapios, Quindiu, Goudot.)

This species is very distinct, its larger leaves being so extremely different in form from the others; they are  $3\frac{1}{2}$ – $3\frac{3}{4}$  inches long,  $\frac{3}{4}$  inch wide, on a petiole barely  $\frac{1}{2}$  inch in length, the smaller geminate leaf being 10 lines long and 7 lines broad; the peduncle is scarcely 2 lines, and the corolla 2 lines in length; the calyx is 1 line long and in diameter, submembranaceous, without nervures, and with five obsolete teeth on its almost entire margin †.

11. *Brachistus? lanceafolius* (n. sp.) ;—ramis ferrugineo-tomentosis, dichotomis, ramulis angulatis, divaricatim flexuosis, vix ligneis; foliis alternis, lanceolatis, utrinque acuminatis, integris, supra parce, subtus densius fulvo-puberulis, petiolo subbrevis; floribus e dichotomiis solitariis, vel e turionibus fasciculatis; pedunculis 1–4, unifloris, pilosis, apice incrassato-incurvis; calyce piloso brevi, urceolato, angulato, margine fere integro, dentibus 5 minimis instructo; corolla rotata, subglabra, limbo 5-lobo, lobis acutis, triangularibus, reflexis, margine floccosis; staminibus inclusis, erectis, glabris; stylo apice incrassato, stigmatibus capitato-bilobo.—America æquinoctialis, v. s. in herb. Hook. (Loxa, regno Quitensi, Seemann, p. 879.)—(Vita, Peruvæ, McLean.)

This is a plant very distinct from the others, with very dichotomously spreading branches, which have a more medullary and less ligneous substance: there is no indication of fruit in the spe-

\* This species is represented in Plate 37 A. of the 'Illustr. South Amer. Plants.'

† A drawing of this species is shown in Plate 37 B. of the 'Illustr. South Amer. Plants.'

cimens referred to, but the structure of the flower corresponds with that of all the plants above described. The leaves are  $2\frac{3}{4}$ – $3\frac{1}{2}$  inches long,  $1$ – $1\frac{1}{2}$  inch broad, upon a petiole 4–6 lines in length; the peduncle measures  $\frac{5}{4}$  inch, the calyx 3 lines in diameter; the corolla, including the acuminate segments, is  $\frac{3}{4}$  inch diameter.

12. *Brachistus Hookerianus* (n. sp.);—fruticulosus, ramulis striatis, molliter pilosis, demum glabris; foliis ovatis, utrinque abrupte acuminatis, imo in petiolum longe decurrentibus, utrinque sparse molliter hirsutis, demum subglabris, margine ciliatis, rachi incrassato venisque pinnatis glabris, geminis, altero multo minore; floribus pentameris, parvulis, axillaribus, fasciculato-congestis; calyce minimo, pubescente, margine integro, dentibus 5, setaceis; corolla lutea, glabra, tubo brevi, subcampanulato, limbo rotato, 5-angulato, angulis acutis, pilosulis; staminibus brevibus, glabris.—Ecuador, v. s. in herb. Hook. (Cerro de Lantana, Guayaquil, Jameson, et in horto Kewensi cultus.)

This pretty species is remarkable for the abundance and brilliancy of its small yellow flowers. Its leaves are  $2\frac{3}{4}$  inches long,  $1\frac{1}{2}$  inch broad, with a somewhat winged petiole  $\frac{3}{4}$  inch long; the peduncle measures 7 lines, the calyx 1 line, with remote setaceous teeth  $\frac{1}{2}$  a line in length; the corolla is 5 lines in diameter.

13. *Brachistus diversifolius*. *Witheringia diversifolia*, Klotsch MSS.; Walp. Rep. iii. 29;—suffruticosus, ramis teretibus, subglabris, ramulis pubescentibus; foliis ovatis, acutis, basi abrupte attenuatis, utrinque sparsim pubescentibus, plerumque geminis, altero obtusissimo duplo minori; pedunculis axillaribus, solitariis, calyce 5-dentato, corolla lutea, 5-fida.—Mexico.

This plant was cultivated in the Botanic Garden of Berlin, from whence the particulars of the above description are probably derived.

14. *Brachistus Neesianus*. *Physalis arborescens*, Linn. Sp. Pl. 261; Nees ab Esenb. Linn. vi. p. 456;—suffruticosus, ramulis angulatis, tomentosis; foliis alternis, superioribus geminis, ovato-oblongis, acumine obtusiusculo, attenuatis, inæqualiter repando-dentatis, crassiusculis, supra subtiliter, subtus densius tomentosis, pilis canis, stellatis; floribus paucis (2–3), extra-axillaribus, pendulis; calyce urceolato, pubescente, 5-fido, dentibus ovatis, obtusiusculis, canescentibus; corolla rotata, ultra medium 5-fida, laciniis lanceolatis, extus tomentellis; fructu ignoto.—Mexico (Yucatan).

This plant has always been referred to *Physalis*, but doubtfully by Nees, who hardly considered it to belong to that genus, on



account of its manifestly fruticose habit, and the different structure of its flowers: with *Brachistus* it appears to correspond sufficiently, although nothing is yet known of its fruit. Willdenow considers this plant the same as that figured in Miller's Dict. tab. 206. Tab. 20\*, but Nees holds a contrary opinion (Linn. *loc. cit.* p. 441), principally on account of its leaves being opposite; it is however most likely that its geminate leaves may have been mistaken by Miller as opposite.

The leaves are said to be 2 inches long, 1 inch broad, on a petiole  $\frac{1}{2}$ – $\frac{3}{4}$  inch in length; the peduncles are 2–2 $\frac{1}{2}$  lines long, the calyx scarcely 2 $\frac{1}{2}$  lines; the corolla, including the lobes, is 3 $\frac{3}{4}$  lines in length.

15. *Brachistus* ? *Linnaeanus*. *Physalis arborescens*, Linn. *Sp. Pl.* 161; *Spr. Syst. Veg.* i. 696;—caule arborescente; foliis ovatis, subangulatis, subtus lanatis; floribus solitariis.—Mexico.

This species is excluded by Nees (Linn. vi. 483) from *Physalis*, and considered by him as altogether distinct from the foregoing. From the above short character it is impossible to come to any decided opinion on the subject.

XXXIII.—*The Musci and Hepaticæ of the Pyrenees.*

By RICHARD SPRUCE.

[Continued from p. 106.]

THE abbreviations made use of in this Catalogue are (besides those above-mentioned for the zones of altitude) *P. occ.*, *P. c.* and *P. or.* for *Pyrenæi occidentales*, *centrales* and *orientales*, respectively; *M. P.* for “*Musci Pyrenaici quos in Pyrenæis centralibus occidentalibusque, necnon in Agro Syrtico, A.D. 1845–46 decerpit Richard Spruce. Londini: 1847;*” and *H. P.* for a similar fasciculus of the *Hepaticæ* of the Pyrenees, and of the same date.

I have made a point of citing the original description of each species, and one good figure of it, where such exists: the few synonyms that are occasionally given have been in most cases ascertained from authentic specimens.

As to those localities which I owe to the observations of my friends, I have affixed an autopsial mark (!) to the finder's name in all cases where I have had the opportunity of examining his specimens; and where I have not only done this but have also observed the same species in the very same place, a similar mark

\* “*Physalis foliis ovato-lanceolatis, integerrimis, oppositis, caule fruticoso.*”